

IN THE US PATENT AND TM OFFICE

Appn. Number:

Filing Date:

Applicant: Shi V. Liu

Appn. Title: Method and apparatus for producing age-synchronized cells

A division of Ser. Nr. 09/605958, Filed 2000-06-28

Examiner: Harry J. Guttman/ Art Unit 1651

Mailed 2000, Feb. 25  
Goshen, NY 10924

**Preliminary Amendment**

Commissioner of Patents and Trademarks  
Washington, DC 20231

Sir:

Pursuant to 37CFR1.53(b) and in response to Office Action dated 2000-09-22 that stated a restriction and/or election on the claims submitted in the original application, please file a divisional application of the above pending complete application. This Rule 53 divisional application is being actually express mailed during the pendency of the above application. It should be a division of the above application.

Enclosed please find a complete true copy of the prior application (including specification, claims, drawings, abstract, declaration, information disclosure statement and copies of citations). A newly executed declaration is also provided, reflecting the current address of the applicant.

Please kindly amend the above application as follows:

**SPECIFICATION:**

Add the following sentence before line 1 on page 1: "This is a division of application of Ser. Nr. 09/605958, filed 2000-06-28."

**CLAIMS:**

Cancel all of the old claims and insert new claims 21 to 40 as follows:

21. An apparatus for constant removal of offspring cells reproduced from retained cells and instant retrieval of retained cells during their growth and aging process, comprising:

- (a) a cover comprising a flat plate having multiple holes and a plurality of poles individually inserted into said multiple holes;
- (b) a container matching said cover in size and shape and having at least one inlet and at least one outlet on the opposite sidewall of said container;
- (c) a connection means combining said cover with said container to form a closed chamber; and
- (d) a fluid circulation means connected with said container for driving a horizontal liquid current through said container.

22. The apparatus of claim 21, wherein said flat plate of said cover has a shape including round, rectangle, and polygon.

23. The apparatus of claim 21, wherein said multiple holes on said flat plate of said cover has a shape including round, rectangle, and polygon.

24. The apparatus of claim 21, wherein said plurality of poles is made of materials including glass, plastics, metal, and rubber.

25. The apparatus of claim 21, wherein said plurality of poles matches in size and shape to the size and shape of respective said multiple holes that they are inserted.

26. The apparatus of claim 21, wherein said plurality of poles has a positioning means for retaining themselves on the holes when they are inserted.

27. The apparatus of claim 26, wherein said positioning means include using a pole with a upper part that is larger than the size of the hole it inserts, using a pole with a O ring circled around its vertical body, and using a pole with some perpendicularly extended spikes around its vertical body.

28. The apparatus of claim 21, wherein said plurality of poles extend below the bottom surface of said flat plate when they are inserted into said multiple holes on said flat plate.

29. The apparatus of claim 21, wherein said plurality of poles exists in a form including solid pole, hollow pole, and hollow pole containing stuffing object.

30. The apparatus of claim 29, wherein said stuffing object includes some magnetic materials and an objective lens of a light microscope.

31. The apparatus of claim 21, wherein the bottom of said plurality of poles is coated with a substance including poly-L-lysine, avidin, and antibody.

32. The apparatus of claim 21, wherein the bottom of said plurality of poles is covered with one or more objects comprising a sheet of plastic film, a piece of filter membrane, a plastic disc, and a glass disc.

33. The apparatus of claim 32, wherein the exposed surface of said objects covering the bottom of said pole is coated with a substance including poly-L-lysine, avidin, and antibody.
34. The apparatus of claim 21, wherein said connection means combining said cover with said container to form a closed chamber includes engaging the outer rim of said cover with the top of the sidewall of said container by a pair of matching ridge and grove respectively constructed on the cover and container and holding the cover and the container together by a clamp.
35. The apparatus of claim 21, wherein said liquid includes plain water and water amended with nutrient components.
36. The apparatus of claim 21, wherein said fluid circulation means includes injecting liquid into said inlet and withdrawing liquid from said outlet on said container.
37. The apparatus of claim 36, wherein said action of injecting and withdrawing liquid is achieved through using a pump.
38. The apparatus of claim 37, wherein the operation of said pump is controlled by a computer.
39. The apparatus of claim 21, further including a device for maintaining the temperature of said liquid at a predetermined value.
40. The apparatus of claim 39, wherein said device for maintaining the temperature comprises a heating unit, a cooling unit, and a regulation unit.

The above new claims are being submitted as part of the divisional application; these claims are submitted to be patentable over the art of record in the parent case.

If for any reason the claims of this application are not believed to be in full condition for allowance, applicant respectfully requests the constructive assistance and suggestions of the Examiner in drafting one or more acceptable claims or in making constructive suggestions in order that this application can be placed in allowable condition.

Very respectfully,



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